Lab 4 Prelab

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1 Described what each command does

- $ source
  - The source command can be used to load any functions file into the current shell script or a command prompt.
  - It read and execute commands from given FILENAME and return.
  - The pathnames in $PATH are used to find the directory containing FILENAME. If any ARGUMENTS are supplied, they become the positional parameters when FILENAME is executed.
- $ catkin_init_workspace
  - Initializes a catkin workspace by creating a top-level CMakeLists.txt.
- $ rosrun
  - rosrun will locate PACKAGE and try to find an executable named EXECUTABLE in the PACKAGE tree. If it finds it, it will run it with ARGS.
- $ rostopic
  - rostopic is a command-line tool for printing information about ROS Topics.
- $ printenv | grep
  - printenv: Print the values of the speci*f*ied environment VARIABLE(s). If no VARIABLE is specified, print name and value pairs for them all.
  - grep: The grep command is used to search text or searches the given file for lines containing a match to the given strings or words.
- $ catkin_make
  - Creates the catkin workspace layout and invokes cmake and make.
- $ rosnode
  - rosnode is a command-line tool for printing information about ROS Nodes.
- $ rosmsg
  - rosmsg is a command-line tool for displaying information about ROS Message types.
- $ catkin_create_pkg
  - Creates a new catkin package.
- $ roscore
  - roscore will start up a ROS Master, a ROS Parameter Server and a rosout logging node.

- $ rospack
  - rospack is a command-line tool for retrieving information about ROS packages available on the filesystem.
- $ rossrv
  - rossrv is a command-line tool for displaying information about ROS Service types.

2 Describe what is each line for in CMakeList.txt file

- include_directories( )
  - Specify where header files can be found for the code (most common in C/C++) being built.
- add_executable( )
  - To specify an executable target that must be built.
- target_link_libraries( )
  - To specify which libraries an executable target links against. This is done typically after an add_executable() call.

3 Describe following lines of .cpp code

- ros::init(argc, argv, "node_name");
  - Initialize ROS. This allows ROS to do name remapping through the command line. This is also where we specify the name of our node. Node names must be unique in a running system.
- ros::start();
  - Start the node resource managers (communication, time, etc).
- ROS_INFO_STREAM("Hello, world!");
  - Broadcast the message "Hello, world!".
- ros::spinOnce();
  - Call all the callbacks waiting to be called on the queue when spinOnce() is called.
- ros::shutdown()
  - Stop the node's resources.